

Willimantic Linen Company: Mill No. 5
(American Thread Company: Mill No. 5)
Immediately west of South Main Street,
north bank of Willimantic River
Windham
Windham County
Connecticut

HAER No. CT-44-B

HAER
CONN
8-WIND,
1B-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
MID-ATLANTIC REGION, NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

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HISTORIC AMERICAN ENGINEERING RECORD

WILLIMANTIC LINEN COMPANY: MILL NO. 5
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Location: Immediately east of South Main Street, north bank of Willimantic River, Borough of Willimantic, Windham, Windham County, Connecticut

USGS Quadrangle: Willimantic, Connecticut
UTM Coordinates: 18.732400.4621120

Date(s) of Construction: c1900-1903

Present Owner: ATC Partnership
14 Farwell Street
West Haven, CT 06579

Present Use: Vacant

Significance: Willimantic Linen Company began work on Mill No. 5 shortly before selling out to American Thread Company in 1898. American Thread completed the mill c1900-03 as the one of several brick-pier factories. Part of the power used in Mill No. 5 came from hydropower facilities installed at this time in Mill No. 1 (HAER No. CT-44-A). Although not an individually significant structure, Mill No. 5 has significance as part of the American Thread Company complex, once the largest local employer in the Borough of Willimantic.

Project Information: The Willimantic Linen Company/American Thread Company complex is eligible for inclusion on the National Register of Historic Places. Willimantic Power Corporation installed new hydroelectric facilities in Mill No. 1 (HAER No. CT-44-A), and refurbished or modified some related waterpower delivery system components, in 1988-90. Installation of the new facilities did not directly affect Mill No. 5, but did remove or alter components of a historic hydroelectric system which encompassed mills no. 1 and 5. In compliance with Federal Energy Regulatory Commission Article 21 and a request from the Connecticut Historical Commission, Willimantic Power Corporation documented the hydropower facilities extant in 1988 prior to project construction.

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Part I: HISTORICAL INFORMATION*

Willimantic Linen Company began operations in 1854 using cotton mills built in 1825, and soon shifted from linen to thread production when the Crimean War interrupted European flax supplies. By 1895, the firm built three new mills, a bleachery and dye house, a storehouse, an office, and other auxiliary structures. American Thread Company purchased Willimantic Linen in 1898 and continued to expand the Willimantic complex until c1915, adding or completing two mill buildings, a second dye house, and a warehouse. Thread manufacture persisted here until 1984. Many of the buildings survive, awaiting proposed redevelopment (Figure 2). This documentation focuses on hydroelectric development associated with Mill No. 5. For summaries of the history and significance of this complex, see Weaver 1869, Anonymous 1974, Roth *et al.* 1981, and Harlow 1988.

Information on 19th-century Willimantic Linen hydropower facilities is limited, but the overall sequence of development can be inferred from several sources (Gray 1869; Porter 1885; Mueller 1897; Associated Mutual Insurance Company 1908; Sanborn Map Company 1924; Anonymous 1974; personal communications, Laura Knott Twine). Between 1854 and 1864, the company purchased or developed four consecutive water privileges on the Willimantic River, which falls about ninety feet through the Borough of Willimantic over a ledge-dominated two-mile distance (Figure 1). Of the four privileges, totalling some 63 feet of fall, the lowermost had 16.5 feet of fall at a framed timber dam built c1825 in conjunction with a frame cotton mill on the north side of the river. Willimantic Linen bought this site in 1854, along with an 1825 stone cotton mill on the north bank between the two uppermost privileges (the "Spool Shop," at or just above the site of the c1915 warehouse shown on Figure 2). The firm began operations in the older mills, and immediately began construction of Mill No. 1 and related hydropower facilities. Willimantic Linen built two dams c1854, above and below the Spool Shop, perhaps replacing or improving an earlier dam in the process. The uppermost dam (the "Spool Dam") was a mortared granite-block structure about 500 feet upriver from Mill No. 1, and developed a water privilege with 13.6 feet of fall (Figure 2). The second 1854 dam, a framed timber structure (later encased in granite block) built at the downstream end of Mill No. 1, provided 11 feet of head (Porter 1885: 26). Willimantic Linen developed its last water privilege c1862-64, building a mortared granite-block dam with 22 feet of fall for Mill No. 2 (Figure 2).

American Thread Company consolidated the two upper water privileges to drive hydroelectric facilities centered in the downstream Mill No. 1 wheelhouse c1900-03 (see HAER No. CT-44-A). In this period, the company completed Mill No. 5 immediately downstream of Mill No. 1, and deactivated two earlier wheelhouses in the Spool Shop and Mill No. 1. In addition to new Spool Dam headgates, the redesigned power arrangements included a steel penstock running under Mill No. 1 from the end of the Spool Dam headrace, a new 600 hp double-runner horizontal-shaft turbine in the older wheelhouse, and a generator in

* Capitalized citations refer to photographs included with this documentation.

Mill No. 5 (Figures 3-9; American Thread Company 1900, 1903, 1910-58). Horizontal-shaft turbine installations of this type for electric generation were common c1890-1920 (Hunter 1979: 381-83, 394). The new hydropower arrangements in Mill No. 1 increased c1880 horsepower totals by more than a third, but by the early 20th century, American Thread Company operating demands exceeded its waterpower sources, and steam was the principal source of on-site-generated power at the complex (Associated Mutual Insurance Company 1908). The overall production, purchase, transmission, and use of power here remain undocumented, as do most changes made to the c1900-1903 installations at mills no. 1 and 5.

Part II: DESCRIPTIVE INFORMATION

This brief section describes hydroelectric facilities associated with Mill No. 5 as they appeared in 1988. Description of the associated hydropower components in Mill No. 1 appears in the documentation of HAER No. CT-44-A.

Mill No. 5 was built as a four-story brick-pier structure with a flat roof, segmental-arch lintels and stone sills, about 235 by 100 feet in plan. The surviving 700-KVA General Electric generator in the southwest corner of the first floor was driven by a 100-foot-long, 6-inch-diameter shaft from the turbine in Mill No. 1, off a 52-inch-diameter wheel with a 39-inch-wide belt and a belt-tightening mechanism. It has a cast-iron frame and a built-in exciter (American Thread Company 1910-58; VIEW EAST OF GENERATOR; BELT-TIGHTENING MECHANISM AT LEFT).

Part III: SOURCES OF INFORMATION

Historic Drawings and Photographs

The Windham Textile and History Museum, which began operations in September 1989, has obtained the surviving drawings of the American Thread Company and about 300 historic photographs. These materials are at present uncatalogued and essentially unavailable. To date, only one drawing, identified by Summit Hydropower c1984-87 and listed below, has any information on the generator. For future access to these materials, which will be catalogued over the next several years, contact the museum at 157 Union Street - Main Street, Willimantic, CT 06226, telephone 203/456-2178.

Bibliography

American Thread Company

- 1910-58 Willimantic Mills. [shows various plans and elevations].
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Sources Not Yet Investigated

Surviving written records of the Willimantic Linen Company and the American Thread Company are very limited. Plans, drawings, and photographs dating to c1855 will eventually be available at the Windham Textile and History Museum, and may have additional details on power arrangements in Mill No. 5.

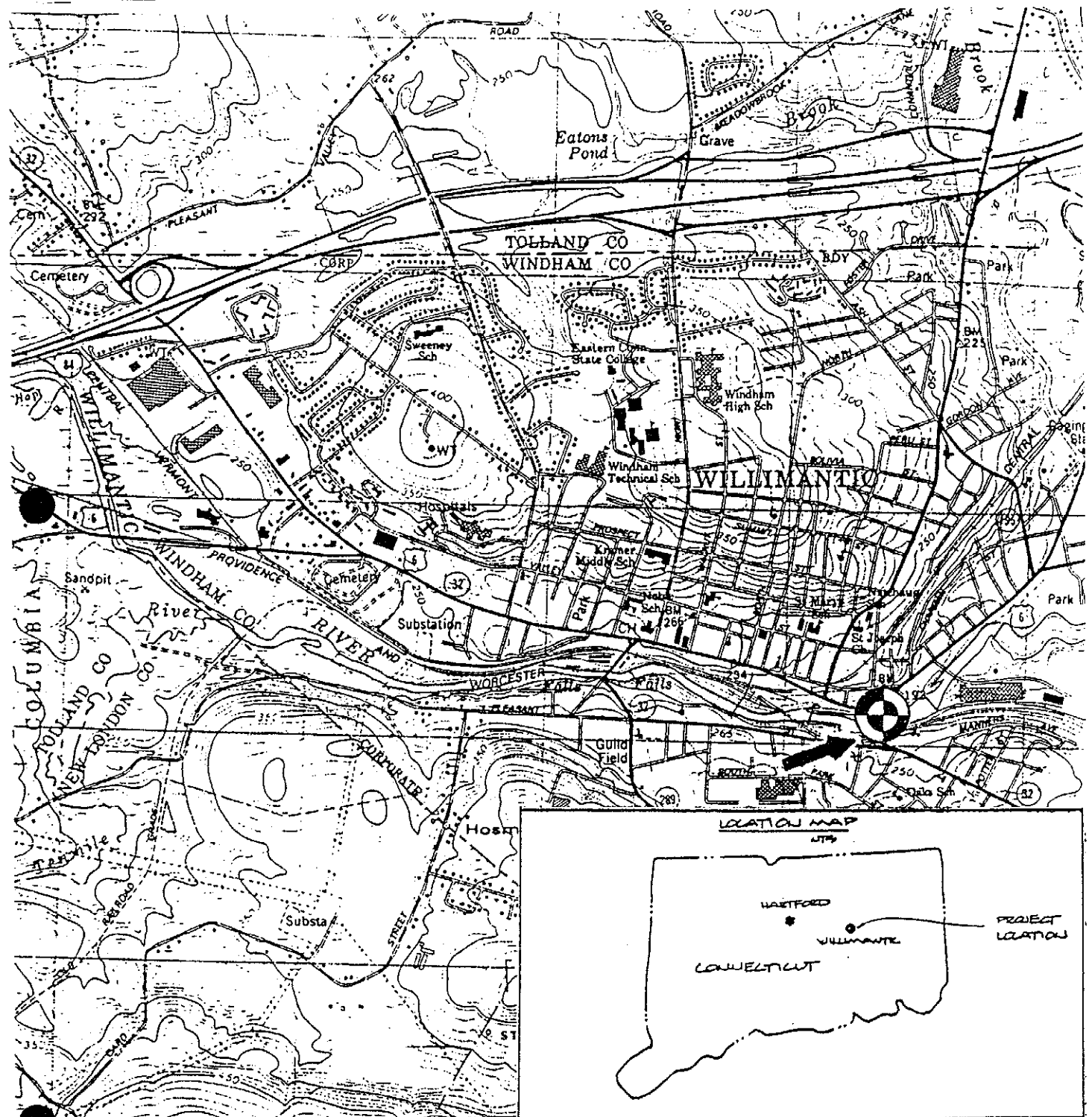


Figure 1. LOCATION OF MILL NO. 5

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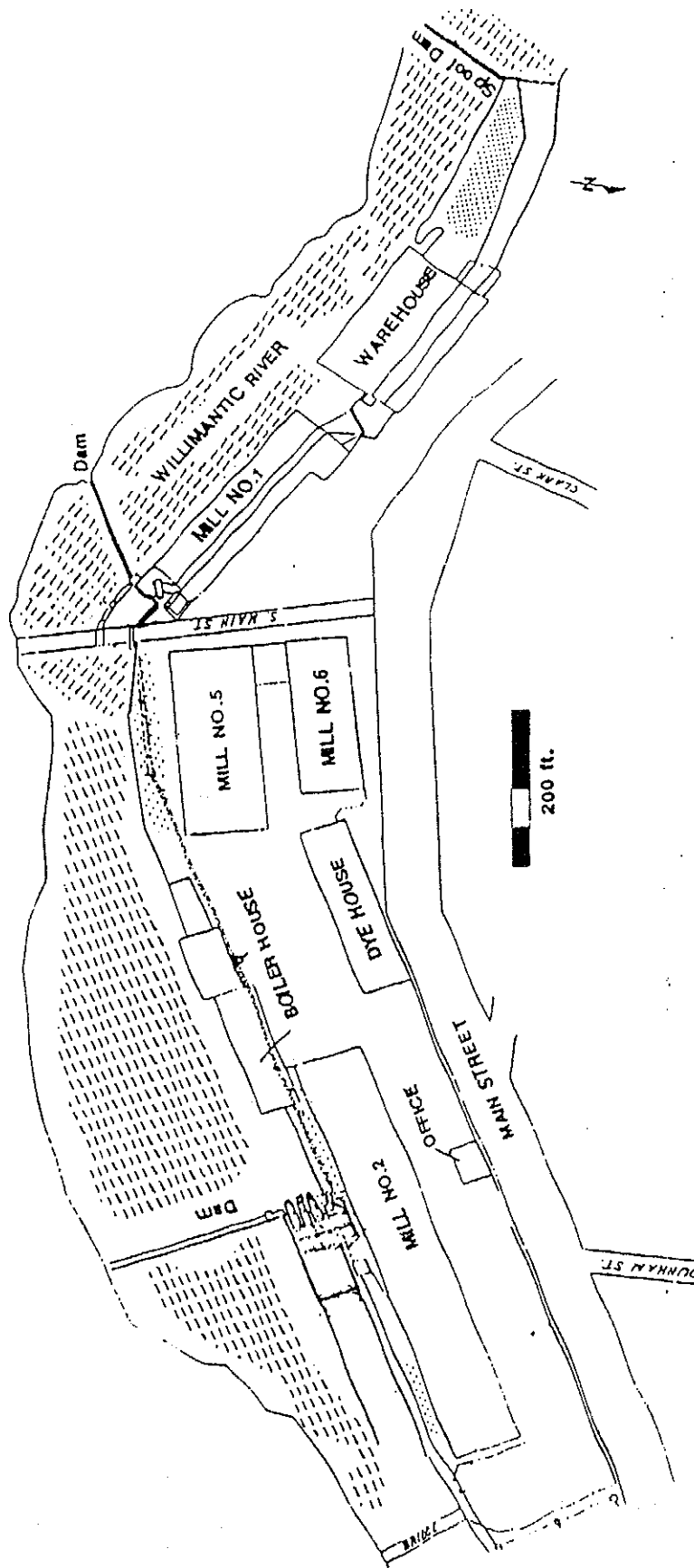


Figure 2. PRINCIPAL SURVIVING COMPONENTS, AMERICAN THREAD COMPANY COMPLEX, WILLIMANTIC, CT